

REMARKS

To further prosecution of the present application, Applicants have amended herein claim 50. Claims 50 and 52-69 are currently pending with claim 50 in independent form. Applicants respectfully request consideration of the claim amendment and the discussion provided below.

Rejection of Claims 50 and 52-69 Under 35 U.S.C. § 112, Second Paragraph

The Examiner has rejected claims 50 and 52-69 under § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicants regard as the invention.

More specifically, the Examiner indicates that it is unclear whether the viscosity-modifying agent, the lubricant and/or the film forming binder are part of the final article or whether they are used along with the superabsorbent polymer precursor in aqueous solution to form the coating on at least one surface of the article. Applicants have herein amended claim 50 to indicate that a water soluble superabsorbent polyacrylate polymer precursor in aqueous solution, a viscosity-modifying agent, a lubricant and a film forming binder are components of the superabsorbent polyacrylate polymer coating.

Applicants respectfully submit that claim 50 is definite and defines the claimed invention. Therefore, Applicants respectfully request withdrawal of the rejection of claim 50, and further the rejection of dependent claims 52-69.

Rejection of Claims 50 and 52-69 Under 35 U.S.C. § 102(b) and/or § 103(a)

Claims 50 and 52-69 have been rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being unpatentable over Kono et al. or Shiono et al., Kroesbergen, Manning et al., Gaa et al. or Cossement et al. Applicants respectfully traverse each of the rejections under 35 U.S.C. § 102(b) and § 103(a) with respect to the cited prior art references for the reasons provided below.

Claim 50 has been amended herein and is directed to an article at least partially coated comprising at least one surface at least partially coated with a superabsorbent polyacrylate polymer coating, said coating comprising (i) at least one water-soluble superabsorbent polyacrylate polymer precursor in aqueous solution, which cures when

said coating is applied to said at least one surface to form a superabsorbent polyacrylate polymer; (ii) a viscosity-modifying agent; (iii) a lubricant; and (iv) a film forming binder in aqueous solution, said film forming binder selected from the group consisting of polyesters, polyurethanes, epoxies, latex and mixtures thereof, wherein said superabsorbent polyacrylate polymer absorbs water when it is wetted and desorbs water when it is dried.

Kono et al. do not teach or suggest an article with at least one surface at least partially coated with a superabsorbent polyacrylate polymer coating comprising a water-soluble superabsorbent polyacrylate polymer precursor in aqueous solution that cures when the coating is applied to the surface to form a superabsorbent polymer, and a viscosity-modifying agent, a lubricant and a film-forming binder. Rather, Kono et al. teach a water absorbing tape that includes a layer or film of a water-absorbing resin (3) to which a water absorbing composition layer (2) is disposed. The water absorbing composition layer (2) has defined therein a number of holes (H) that expose the water absorbing resin layer or film (3). While Kono et al. indicate that the water absorbing resin of layer (3) has water absorbing capability when brought into contact with water, Kono et al. do not disclose an article at least partially coated with *a superabsorbent polyacrylate polymer coating including a water-soluble superabsorbent polymer precursor in aqueous solution* that cures when the coating is applied to the surface to form a superabsorbent polyacrylate polymer. In addition, Kono et al. do not teach *said polymer absorbs water when it is wetted and desorbs water when it is dried*. Therefore, Kono et al. cannot anticipate claim 50 under 37 U.S.C. § 102(b).

In addition, Kono et al. do not teach or suggest the coated article of claim 50. Kono et al. teach a water absorbing tape that includes one or more layers containing a water-absorbing resin and a binder on one or both faces of a substrate, as described above. The composition of the layers of water-absorbing resin would not suggest to one of ordinary skill in the art the article of claim 50 having at least one surface at least partially coated with *a superabsorbent polyacrylate polymer coating having one component of a water soluble superabsorbent polyacrylate polymer precursor in aqueous solution* that cures when the coating is applied to the surface cures to form a

superabsorbent polyacrylate polymer and wherein the polymer exhibits *water absorption when it is exposed to water and desorption when it is dried*. Kono et al. therefore, do not teach or suggest the invention of claim 50.

Thus, claim 50 is patentably distinguishable from the Kono et al. reference. Accordingly, the rejections of claim 50 under 35 U.S.C. § 102 and § 103 should be withdrawn.

Similarly, Shiono et al. do not teach or suggest an article with at least one surface at least partially coated with a superabsorbent polyacrylate coating comprising a water-soluble superabsorbent polyacrylate polymer precursor that cures when the coating is applied to the surface to form a superabsorbent polyacrylate polymer. Rather, Shiono et al. teach a water absorbing tape (9) that includes a surface coated with a water absorbing polymer powder (6) and particles (7) of an inorganic antibacterial or sterilizing agent dispersed in a rubber binder (8). Shiono et al. teach away from the partially coated article of claim 50 wherein Shiono et al. teach applying water absorbing polymer powder dispersed in a binder to a cable tape to form a coating thereon. The *water soluble superabsorbent polyacrylate polymer precursor in aqueous solution* of claim 50 is distinctly different from the disclosed water absorbing polymer powders.

In addition, Shiono et al. do not teach the water absorbing polymer powder cures when applied to a surface to form a superabsorbent polyacrylate polymer, as does the claimed superabsorbent polyacrylate precursor in aqueous solution when the coating is applied to a surface.

Further, Shiono et al. do not teach or suggest the polymer coating further including *a viscosity-modifying agent, a lubricant and a film forming binder* as recited in claim 50. Shiono et al., therefore, cannot anticipate claim 50 because Shiono et al. do not teach each and every element of claim 50.

Shiono et al. also do not provide any teaching that would motivate one of ordinary skill in the art to modify the teachings of Shiono et al. to achieve the claimed invention. In particular, problems associated with use of water absorbing polymer powders are well known to those of ordinary skill in the art and, in particular, with the application of such powders to substrate surfaces; hence, the dispersion of such materials in a rubber-based

binder. Specifically, Applicants respectfully submit that Shiono et al. do not provide any teaching or suggestion of *a water-soluble superabsorbent polyacrylate polymer precursor in aqueous solution* that cures when the coating is applied to a surface to form a superabsorbent polyacrylate polymer. Nor do Shiono et al. provide any teaching or suggestion of *a viscosity-modifying agent, a lubricant and a film forming binder* in combination therewith, as recited in claim 50. The teachings of Shiono et al., therefore, do not render obvious the invention of claim 50.

The Shiono et al. reference does not anticipate nor render obvious claim 50. Therefore, claim 50 is patentably distinguishable therefrom, and the rejections of claim 50 under 35 U.S.C. § 102(b) and § 103(a) should be withdrawn.

With respect to Kroesbergen, Applicants respectfully submit that Kroesbergen does not teach each and every element of claim 50 nor does Kroesbergen provide a teaching or suggestion of the article at least partially coated with the superabsorbent polyacrylate polymer coating recited in claim 50. Rather, Kroesbergen teaches a super absorbent material formed from suitable monomers polymerized in the presence of catalyst and cross-linked with a cross-linking agent to form a pasty composition. In view of this teaching, the super absorbent material of Kroesbergen is preferably not spreadable, but rather is applied to a surface using, for instance, a template. In contrast, the polymer coating of the article of claim 50 includes *a viscosity modifier* that helps to provide consistency suitable for spreading the coating, and also includes *a film-forming binder* to help to facilitate adherence of the coating to a surface. In addition, the coating of claim 50 further includes *a lubricant*. Kroesbergen, therefore, does not teach each and every element of claim 50 and therefore cannot anticipate claim 50.

In addition, Kroesbergen does not provide a teaching or suggestion of adding such components to super absorbent polyacrylate polymer composition. Specifically, Kroesbergen does not teach or suggest adding *a viscosity-modifying agent, a lubricant or a film forming binder* to form a superabsorbent polyacrylate polymer coating as recited in claim 50 wherein the polyacrylate polymer component exhibits water absorption when it is wetted and desorbs water when it is dried. As such, claim 50 is not obvious in view of Kroesbergen.

Thus, Kroesbergen neither anticipates nor renders obvious the invention of claim 50. Accordingly, the rejections of claim 50 under 37 U.S.C. § 102(b) and 103(a) should be withdrawn.

Applicants respectfully submit that Gaa et al. do not disclose each and every element of claim 50, nor provide a teaching or suggestion that would motivate one of ordinary skill to modify the teachings of Gaa et al. to achieve the invention of claim 50. Gaa et al. disclose a composition that produces a hydrophobic material that exhibits water resistance and sheds water on contact. Gaa et al., therefore, teach away from the claimed invention. In particular, Gaa et al. teach reacting polyacrylamides or polyamides with urea formaldehyde and silane that forms a bonded network, which is not superabsorbent or would not lead to a compound exhibiting superabsorbent properties. Clearly, Gaa et al. do not teach each and every element of claim 50 and, more specifically, do not teach an article comprising at least one surface at least partially coated with a superabsorbent polyacrylate polymer coating comprising *a water soluble superabsorbent polyacrylate precursor in aqueous solution* that cures when the coating is applied to the surface to form a superabsorbent polyacrylate polymer.

In addition, the teachings of Gaa et al. do not suggest or provide motivation for an article having at least one surface partially coated with a superabsorbent polyacrylate polymer coating comprising *a water soluble superabsorbent polyacrylate precursor in aqueous solution* that cures when the coating is applied to the surface to form a superabsorbent polyacrylate polymer that *absorbs water when it is wetted and desorbs water when it is dried*.

Thus, Gaa et al. does anticipate nor render obvious claim 50. The claimed invention, therefore, is patentably distinguishable from Gaa et al. Accordingly, the rejections of claim 50 under 35 U.S.C. § 102(b) and § 103(a) should be withdrawn.

With respect to Manning et al., Applicants respectfully submit that the teachings of Manning et al. do not anticipate each and every element of claim 50. More specifically, Manning et al. do not teach an article comprising at least one surface at least partially coated with a superabsorbent polyacrylate polymer coating, the coating

comprising *a water soluble superabsorbent polyacrylate polymer precursor in aqueous solution* that cures when the coating is applied to the surface to form a superabsorbent polyacrylate polymer. In addition, Manning et al. do not teach the additional components of the coating recited in claim 50 including *a viscosity-modifying agent, a lubricant or a film forming binder*. Manning et al. teaches a fabric with an enhanced capacity for absorption of water comprising one or more hydrophilic polymers that are applied to the fabric. While Manning et al. indicate such hydrophilic polymers can include homopolymers and copolymers of acrylic acid, Manning et al. do not disclose a water soluble superabsorbent polyacrylate polymer precursor in aqueous solution as is recited in claim 50. Manning et al. clearly do not teach each and every element of claim 50 and therefore do not anticipate claim 50.

In addition, Manning et al. do not provide any teaching or suggestion that would motivate one of ordinary skill in the art to modify the hydrophilic homo- and co-polymers of acrylic acid such that any of such polymers includes *a water soluble superabsorbent polyacrylate polymer precursor in aqueous solution* that cures when the coating is applied to a surface to form a superabsorbent polymer.

Thus, the Manning et al. reference does not anticipate nor render obvious the invention of claim 50. Accordingly, claim 50 is patentably distinguishable and the rejections of claim 50 under 35 U.S.C. § 102(b) and § 103(a) should be withdrawn.

Applicants respectfully submit that Cossement et al. do not anticipate each and every element of claim 50, and further submit that Cossement et al. do not provide any teaching or suggestion that would have motivated one of ordinary skill in the art at the time of the invention to modify its teachings to achieve the recited invention of claim 50. Cossement et al. disclose a size composition for use with glass fibers and filaments that include a polyurethane dispersion such as an aqueous emulsion of blocked polyurethane resins, or chain extended thermoplastic urethanes. In addition such emulsions can include coupling agents and water. Such size compositions are applied to glass fibers to provide size stability and fuzz reduction. Cossement et al., however, do not specifically teach *a water soluble superabsorbent polymer precursor in aqueous solution* as a component of a superabsorbent polyacrylate polymer coating wherein such precursor

cures to form a superabsorbent polyacrylate polymer when the coating is applied to a surface. In addition, Cossement et al. do not specifically teach such polymer precursor in combination with *a viscosity-modifying agent, a lubricant or a film forming binder*. Cossement et al., therefore, do not anticipate claim 50.

Claim 50 is also not obvious in view of Cossement et al. because such reference does not provide a teaching or a suggestion that would motivate one of ordinary skill to modify such polyurethane dispersions and emulsions to achieve the *water soluble superabsorbent polymer precursor in aqueous solution* of claim 50 that cures when the coating is applied to a surface to form a superabsorbent polyacrylate polymer.

Thus, claim 50 is neither anticipated nor rendered obvious in view of the Cossement et al. reference, and is patentably distinguishable therefrom. Accordingly, the rejection of claim 50 under 35 U.S.C. § 102(b) and § 103(a) should be withdrawn.

Claims 52-69 depend on claim 50 and are patentable for at least the reasons given above with respect to claim 50 in view of each of the cited prior art references. The rejections of claims 52-69 under 35 U.S.C. § 102(b) and § 103(a), therefore, should be withdrawn.

Rejection of Claims 19-43 and 47-49 Under 35 U.S.C. § 102(b) and § 103(a)

Claims 19-43 and 47-49 have been rejected under 35 U.S.C. § 102(b) or, in the alternative, under 35 U.S.C. § 103(a). Applicant respectfully submits that claims 1-49 were previously cancelled from the present application. Accordingly, the rejections should be withdrawn.

Rejection of Claims 50 and 52-69 Under 35 U.S.C. § 103(a)

Claims 50 and 52-69 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Arroyo et al. or Geursen et al. in combination with Barch et al. Applicants respectfully traverse the rejection of claims 50 and 52-69 under 35 U.S.C. § 103(a) as being unpatentable over the cited combination of prior art references for the reasons provided below.

As noted above, claim 50 has been amended herein by the foregoing amendment.

Amended claim 50 is patentably distinguishable from the combination of cited prior art references, namely Arroyo et al. in view of Barch et al., and Geursen et al. in view of Barch et al.

Arroyo et al. teach a communications cable (20) comprising, *inter alia*, longitudinally extending fibrous strength members having water blocking provisions that are used to enclose buffered optical fibers. More specifically, such strength members are either treated (impregnated) with a superabsorbent liquid material or are wrapped with a water swellable fibrous material. The superabsorbent material includes material that reacts with water to form a reaction product in the form of a gel, which is effective to block a flow of water. Further, Arroyo et al. describe such superabsorbent materials as materials that can absorb and retain water under pressure without dissolution in the fluid being absorbed, and, more particularly, indicate homopolymers and copolymers of acrylic acid among a list of synthetic superabsorbents. Arroyo et al., however, do not specifically teach a superabsorbent polyacrylate polymer coating comprising at least a *water soluble superabsorbent polyacrylate polymer precursor in aqueous solution* that cures when the coating is applied to a surface to form a superabsorbent polymer. Arroyo et al., therefore, do not teach each and every element of claim 50.

Barch et al. teach a sizing composition for coating surfaces of glass fibers used in reinforcement applications. The composition comprises an aqueous solution of a carrier, a film-forming polymer and a coupling agent, and, more particularly, may include polyacrylates. While polyacrylates are disclosed by Barch et al. as film-formers, Barch et al. fail to teach or suggest a coating composition including at least one *water soluble superabsorbent polyacrylate polymer precursor in aqueous solution* that cures when the coating is applied to a surface to form a superabsorbent polyacrylate polymer. In addition, the *polyacrylate polymer precursor in aqueous solution* would not be a desirable component of the size composition of Barch et al. because such a compound would attract water to the glass fibers on which the composition is applied that could produce undesirable effects in the resulting sized fibers. Therefore, Barch et al. do not teach each and every element of claim 50.

While Barch et al. do not teach each and every element of claim 50, Barch et al. also fail to provide a teaching or suggestion that would motivate one of ordinary skill in

the art to modify the synthetic superabsorbent homopolymers and copolymers of acrylic acid Arroyo et al. disclose in accordance with the claimed invention. Specifically, Barch et al. does not suggest the polyacrylate polymer coating comprising at least one *water soluble superabsorbent polyacrylate polymer precursor in aqueous solution* that cures when applied to a surface, nor do Barch et al. provide any teaching or suggestion that would make such a modification and such a precursor obvious. Without any such teaching or suggestion, Arroyo et al. in view of Barch et al. do not render the invention of claim 50 obvious.

Furthermore, the suggested combination of prior art references fails to achieve the invention of claim 50 or, more specifically, a coating composition including at least one *water soluble superabsorbent polyacrylate polymer precursor in aqueous solution* that cures when the coating is applied to a surface to form a superabsorbent polyacrylate polymer.

Thus, the Arroyo et al. reference alone or in combination with the Barch et al. reference does not teach or suggest the claimed invention. Claim 50, therefore, is patentably distinguishable from the cited combination of prior art references. The rejection of claim 50 under 35 U.S.C. § 103(a) as being unpatentable over Arroyo et al. in view of Barch et al. should be withdrawn.

With respect to Geursen et al. in view of Barch et al., Geursen et al. teach an aramid yarn having enhanced water-absorbing capacity achieved by application of an emulsion of superabsorbent water soluble or water insoluble material. Such superabsorbent material can include homopolymers and copolymers derivatives of polyacrylic acid. The superabsorbent material is applied to the aramid yarn via a water-in-oil emulsion wherein the superabsorbent material is present in the aqueous phase of the emulsion.

While Geursen et al teach a homopolymer or copolymer derivative of polyacrylate as a component of a water-in-oil emulsion, Geursen et al. fail to teach a superabsorbent polyacrylate polymer coating comprising at least a *water soluble superabsorbent polyacrylate polymer precursor in aqueous solution* that cures when the coating is applied to a surface to form a polymer. In addition, Geursen et al. fail to teach

any of the additional components of the coating recited in claim 50 including *a viscosity-modifying agent, a lubricant and a film forming binder* in combination with said polymer precursor in aqueous solution.

Geursen et al. also do not provide a teaching or suggestion that would motivate one of ordinary skill in the art to modify the polyacrylate derivatives used in a water-in-oil emulsion to achieve a coating comprising *a water soluble superabsorbent polyacrylate polymer precursor in aqueous solution* that cures when the coating is applied to a surface to form a superabsorbent polyacrylate polymer.

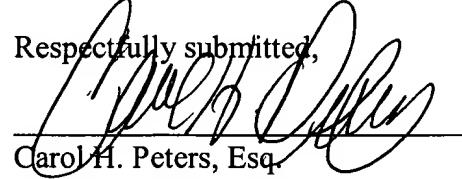
Furthermore, Barch et al. do not provide any teaching or suggestion that would motivate one of ordinary skill in the art to modify the polyacrylate derivatives of Geursen et al. to achieve the coating of claim 50 comprising *a water soluble superabsorbent polyacrylate polymer precursor in aqueous solution* that cures when the coating is applied to a surface to form a superabsorbent polyacrylate polymer wherein said *polymer absorbs water when it is wetted and desorbs water when it is dried*.

Thus, the Geursen et al. reference alone or in combination with the Barch et al. reference does not render the claimed invention obvious. Claim 50, therefore, is patentably distinguishable from the cited combination of prior art references. The rejection of claim 50 under 35 U.S.C. § 103(a) as being unpatentable over Geursen et al. in view of Barch et al. should be withdrawn.

Claims 52-69 depend from claim 50 and are patentable over the cited combination of prior art references for at least the same reasons given above. The rejection of claims 52-69 under 35 U.S.C. § 103(a) as being unpatentable over Arroyo et al. or Geursen et al. in view of Barch et al. should be withdrawn.

Based upon the foregoing amendment and discussion, the present application is believed to be in condition for allowance, and an action to this effect is respectfully requested. Should the Examiner have any questions concerning this response, the Examiner is invited to telephone the undersigned.

Respectfully submitted,


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